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Title of thesis: Determination of plasma protein binding of new radiopharmaceuticals for Alzheimer`s disease imaging

Summary:

Determination of plasma protein binding of new potential drugs belongs to basic parameters which are made at early stages of clinical trials. The drug-protein binding affects all the pharmacokinetic factors and it influences pharmacodynamics as well. The aim of this thesis is to examine binding of ^{99m}Tc-5C-2-BOC and ^{99m}Tc-5C-5-BOC which are potential radiodiagnostics of Alzheimer`s disease, is investigated in this work. Blood plasma of four species (namely human, rabbit, bovine and sewer rat`s plasma) is tested and findings are mutually compared. The binding in both cases is determined by means of two methods – equilibrium dialysis and ultrafiltration. The binding of both substances is the lowest in human and bovine plasma with the use of equilibrium dialysis. The binding of ^{99m}Tc-5C-2-BOC determined by ultrafiltration is the lowest in bovine plasma and a slightly higher in human one, the binding of ^{99m}Tc-5C-5-BOC is the lowest in human plasma. These findings show that binding on plasma proteins will not have a significant impact on pharmacokinetic properties.

Keywords:

Drug-protein binding, equilibrium dialysis, interspecies comparison, Alzheimer`s disease.